



November 2, 2018

Perfluoroalkyl Substances — Fairbanks International Airport

Why am I receiving this fact sheet?

- Chemicals called perfluoroalkyl substances (PFAS) were found at the Fairbanks International Airport (FAI) and in some water wells nearby.
- Prolonged contact with high concentrations of PFAS, including drinking contaminated water, may cause adverse health effects.

What are PFAS?

- PFAS are human-made chemicals that have been used in industry and consumer products worldwide since the 1950s.
- PFAS are manufactured for their heat, water, and stain-resistant properties. These properties make PFAS beneficial for a wide variety of industrial, commercial, and residential applications, such as non-stick cookware, water-repellent clothing, stain-resistant fabrics, and firefighting foams.
- PFAS are emerging contaminants, and limited data on the effects of PFAS on human health are available.

How could I come into contact with PFAS?

- Most people have been exposed to low levels of PFAS from one or more sources. These may include drinking contaminated water, eating contaminated food, or exposure to PFAS-containing consumer products. PFAS do not break down easily, and can be transported long distances in water and air, so they are widespread in the environment.
- Some types of aqueous firefighting foams (AFFF) contain PFAS. Use of these firefighting foams at the airport is the most likely source of PFAS contamination at the Fairbanks International Airport.
- PFAS can also be transferred from exposed mothers to babies during pregnancy and while breastfeeding. Young children may transfer small amounts of PFAS from their hands into their mouths after touching contaminated items at home.

What levels of PFAS are considered unsafe?

- The U.S. Environmental Protection Agency (EPA) has issued a drinking water lifetime health advisory (LHA) for two types of PFAS, called PFOS (perfluorooctanesulfonic acid) and PFOA (perfluorooctanoic acid) — individually or combined — of 70 parts per trillion (ppt or nanograms per liter). The EPA's LHA is intended to prevent adverse health effects associated with consuming water containing PFOS and PFOA over a lifetime, even for sensitive populations.

- The EPA's LHA value was based on the available scientific evidence in 2016 regarding the potential health effects of PFAS. Historically, most research has been done on PFOS and PFOA. Recently, new scientific studies have become available that suggest other PFAS compounds (e.g., PFNA, PFHxS, and PFHpA) may also pose a health risk.
- Because of this new information, the Alaska Department of Environmental Conservation (ADEC) issued more stringent guidelines on PFAS in groundwater in August, 2018. The new guidelines state that the sum of all five PFAS compounds of concern (i.e., PFOS, PFOA, PFNA, PFHxS, and PFHpA) should be below 70 ppt in drinking water, to ensure that human health is protected. The new ADEC guidelines are available online (<http://dec.alaska.gov/spar/csp/guidance-forms>).

How can PFAS affect my health?

- Research with animals has shown that exposure to certain types of PFAS can cause developmental, endocrine, liver, metabolic, and immune toxicity. However, it is important to note that these studies typically use much higher exposure levels than humans commonly experience.
- Scientists are still determining how long-term, low-level exposure to PFAS may impact human health. However, potential health effects from exposure to PFAS are thought to include:
 - Developmental effects on unborn babies and breastfeeding infants — including possible changes in growth, learning, and behavior
 - Decreased fertility and interference with the body's hormones
 - Increased cholesterol and abnormal metabolism of fats
 - Decreased immune function
 - Increased risk of some types of cancer

Are some populations more susceptible to PFAS?

The US Agency for Toxic Substances and Disease Registry considers developing embryos and children through age 18 to be more vulnerable to PFAS.

How can I tell if I have come into contact with PFAS?

PFAS can be measured in the blood; however, this is not a routine test and the results do not provide clear answers for one's potential risk of experiencing health effects. If you would like to have a blood test, please consult with your health care provider.

How can I remove PFAS from my body?

There are no medical interventions that will remove PFAS from the body. The best intervention is to stop the source of exposure.

Safety Information for Fairbanks Residents

Can I drink my well water? What about my pets?

Do not drink your well water or use it to prepare baby formula if the sum concentration of the five PFAS of concern (i.e., PFOS, PFOA, PFNA, PFHxS, and PFHpA) is above the ADEC action level of 70 parts per trillion (ppt). You should also find an alternative water source for pets and other animals.

Is it safe to cook with my well water?

You should not use your well water when cooking or washing food if the sum concentration of the five PFAS of concern is 70 ppt or more. Heating or boiling water doesn't remove PFAS.

Can I clean, wash dishes, wash clothes, and rinse food with my well water?

If your well water is contaminated with PFAS, it is safe to use well water to clean your house, wash dishes, and do laundry.

Is it safe to shower, take baths, and brush my teeth with my well water?

If your well water is contaminated with PFAS, you can reduce exposure by using an alternative (or treated) water source for brushing teeth or any other activity that might result in inadvertent ingestion of water. This is especially true for young children who may swallow water during bathing or brushing teeth. However, it is very unlikely that showering or taking baths with well water will cause any health problems for the following reasons:

- Your skin does not absorb PFAS very well, and PFAS are not skin irritants
- PFAS do not easily move from water to air, so inhalation of much PFAS during showering is unlikely

Can I breastfeed my child if I have been drinking my well water?

It is recommended that nursing mothers continue to breastfeed. This is because breastfeeding provides a number of health benefits for both infants and mothers, which outweigh any known risk associated with transfer of PFAS through breast milk.

Is it safe to water my vegetable garden with my well water?

Some people may feel more comfortable using an alternative water source (which includes rainwater) for their vegetable gardens. Some studies show that certain types of vegetables may absorb small amounts of PFAS through their roots (which can be distributed throughout the plant), but the amount taken up depends on many different factors. These include the levels of PFAS in the water, the frequency of watering, the types of PFAS in the water, and the type of produce grown. However, these studies also note that the health benefits of eating fresh vegetables outweigh the health risks associated with exposure to the small amounts of PFAS that may be present in vegetables. Ultimately, your exposure to PFAS through garden vegetables is not likely to be significant compared to other primary exposure routes such as drinking contaminated water.

If you are concerned about the PFAS content of your soil, produce can either be grown in raised beds with clean soil, or clean compost can be added to the soil to reduce the uptake of PFAS. Regardless of which options you select, we recommend you wash your vegetables with clean water and peel root vegetables.

How often will my well water be tested for PFAS?

The FAI is currently checking wells near the airport. How often the wells are checked will depend on how high the levels of PFAS are. Wells are sampled quarterly or annually, depending on well use, location, and PFAS concentration. Homes that have wells that exceed the LHA will not be resampled, as interim water is being provided and they are being connected to the municipal system as a permanent drinking water source.

What is the Alaska Section of Epidemiology doing to address concerns about PFAS in drinking water?

The Section of Epidemiology is taking steps to protect Fairbanks residents, including:

- Working with the ADEC and the Agency for Toxic Substances and Disease Registry (ATSDR) to understand how PFAS from well water may affect people living near the FAI.
- Finding more information about PFAS and updating our recommendations as data become available.

Where can I get more information?

Helpful Phone Numbers:

State of Alaska Environmental Public Health Program (EPHP) at 907-269-8000 to learn more about the health effects of PFAS

ADEC at 907-451-2153 to learn more about testing for PFAS

Helpful Links:

EPHP's PFAS website: <http://dhss.alaska.gov/dph/Epi/eph/Pages/default.aspx>

ADEC's PFAS website: <http://dec.alaska.gov/spar/csp/pfas-contaminants/>

Fairbanks International Airport website: www.dot.alaska.gov/faigroundwater